A Compact Adaptable Microwave Limb Sounder for Atmospheric Composition (CAMLS)

Completed Technology Project (2014 - 2017)

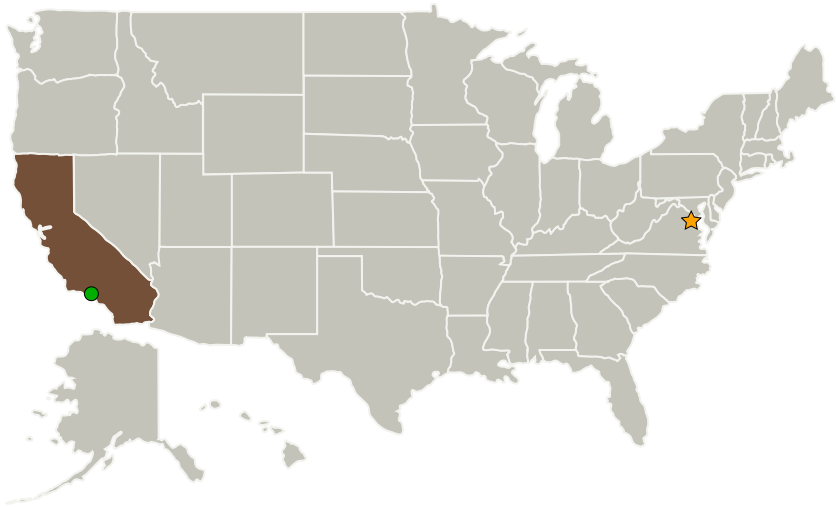
Project Introduction

Develop the engineering model of a compact, light-weight, low-power CAMLS instrument at 340 GHz for observations of composition, humidity, temperature and clouds in Earth's upper troposphere and stratosphere. CAMLS core system will: • consist of only 6 subsystems, as compared to 46 for Microwave Limb Sounder (MLS) on the Aura satellite • be approximately 10 kg, 70 W, and 0.01 m3, as compared to ~270kg, 370W, ~1m3 for Aura MLS • Demonstrate CAMLS functions and performance in airborne test flights.

Anticipated Benefits

The technology developed under this project will enable a low cost mission of small satellite instruments that can provide measurements of water vapor (and other species) in Earth's atmosphere with an unprecedented combination of vertical and horizontal resolution. Such measurements will bring new insights and needed quantification of key small-scale processes potentially affecting the stratosphere and its role in the Earth system.

Primary U.S. Work Locations and Key Partners



ALHAT - ETD Autonomous Landing & Hazard Avoidance Tech Earth Science Technology Office

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Organizations Performing Work	Role	Type	Location
NASA Headquarters(HQ)	Lead Organization	NASA Center	Washington, District of Columbia
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Images

91-1373479894122.png
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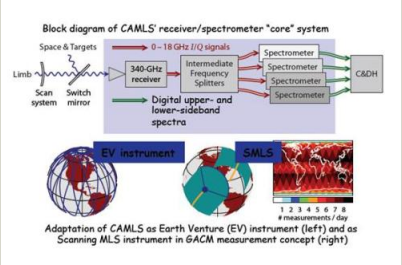
(https://techport.nasa.gov/image/5115)



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(https://techport.nasa.gov/image/3420)

Organizational Responsibility

Responsible Mission Directorate:
Science Mission Directorate (SMD)

Lead Center / Facility:
NASA Headquarters (HQ)

Responsible Program:
Earth Science

Project Management

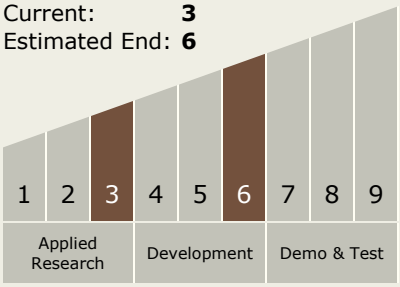
Program Director:
George J Komar

Project Manager:
Eastwood Im

Principal Investigator:
Nathaniel J Livesey

Technology Maturity (TRL)

Start: **3**
Current: **3**
Estimated End: **6**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

Target Destination

Earth